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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/544,783	08/08/2005	Koichi Terashima	Q89627	5339
23373 7590 02/12/2008 SUGHRUE MION, PLLC 2100 PENNSYLVANIA AVENUE, N.W. SUITE 800 WASHINGTON, DC 20037			EXAMINER	
			SENT, PAGE A	
			ART UNIT	PAPER NUMBER
			4135	
			MAIL DATE	DELIVERY MODE
			02/12/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/544,783

**Applicant(s)**

TERASHIMA ET AL.

**Examiner**

PAPE SENE

**Art Unit**

4135

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 1 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08/08/2005.
- 2a) ☐ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-65 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-65 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SF/ICE)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Election/Restrictions***

1. This application contains claims directed to the following patentably distinct species described as follows.

Species 1 relates to figures 3A and 3B; drawn to a method of forming a nickel silicide film specifically on a silicon substrate, which has a surface that is preferably 100 and not 111, and also, the formed film has as main composition more than 50% of nickel monosilicide.

Species 2 relates to figures 4A and 4B; drawn to a method of forming a nickel silicide film specifically on a silicon-germanium mixed crystal layer, formed on a surface of silicon substrate, and also, the formed film has as main composition more than 50% of nickel monosilicide.

Species 3 relates to Figures 5A-5E; drawn to a method of forming a semiconductor device (MOS transistor), by forming a nickel silicide film on the drain/source and gate electrode after removal of the nickel silicide film along with the coating resist, which was in contact with the device isolation region and gate sidewall, wherein wet etching method is used.

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Species 4 relates to figures 6, 7, 8, 9A-9D; drawn to a method of forming a semiconductor device (MOS Transistor), which has silicon substrate, wherein the etching is done in a self-aligning manner by forming a nickel rich nickel silicide on the insulator region and a nickel silicide composed mainly of nickel monosilicide on the semiconductor region; the nickel rich region can be selectively etched with ease, by wet etching, due to its bad crystallinity compared to the semiconductor region.

Species 5 relates to figures 11A and 11B; drawn to a method of forming a semiconductor device (MOS Transistor), with the source/drain region and the gate electrode, composed of germanium mixed crystal and silicon-germanium poly crystal, respectively, wherein the etching is done in a self-aligning manner by forming a nickel rich nickel silicide on the insulator region and a nickel silicide composed mainly of nickel monosilicide on the semiconductor region; the nickel rich region can be selectively etched with ease, by wet etching, due to its bad crystallinity compared to the semiconductor region.

Species 6 relates to figure 12; drawn to a method of forming a semiconductor device (MOS Transistor), which has silicon on insulator (SOI) substrate, wherein the etching is done in a self-aligning manner by forming a nickel rich nickel silicide on the insulator region and a nickel silicide composed mainly of nickel monosilicide on the semiconductor region; the nickel rich region can be selectively etched with ease, by wet etching, due to its bad crystallinity compared to the semiconductor region.

Species 7 relates to figure 13; drawn to a method of forming semiconductor device (MOS Transistor), forming a distorted silicon-germanium mixed crystal layer formed on top of a distorted Si channel layer, formed on top of silicon substrate, wherein the etching is done in a self-aligning manner by forming a nickel rich nickel silicide on the insulator region and a nickel silicide composed mainly of nickel monosilicide on the semiconductor region; the nickel rich region can be selectively etched with ease, by wet etching, due to its bad crystallinity compared to the semiconductor region.

Species 8 relates to figures 14A-14D; drawn to a method of forming semiconductor device (MOSFET), by forming a nickel silicide composed mainly of nickel monosilicide on only the source/drain region, wherein the etching is done in a self-aligning manner by forming a nickel rich nickel silicide on the insulator region and the cap layer, wherein the cap layer, composed of silicon oxide or silicon nitride is on the gate electrode; the nickel rich region can be selectively etched with ease, by wet etching, due to its bad crystallinity compared to the source/drain region.

2. The species are independent or distinct because claims to the different species recite the mutually exclusive characteristics of such species. In addition, these species are not obvious variants of each other based on the current record.

Applicant is required under 35 U.S.C. 121 to elect a single disclosed species for prosecution on the merits to which the claims shall be restricted if no generic claim is

finally held to be allowable. Currently, claims 2, 3, 8, 9 and 12 are generic to all species 1 through 8; also, claims 7 and 14 are generic to species 4 through 8.

There is an examination and search burden for these patentably distinct species due to their mutually exclusive characteristics. The species require a different field of search (e.g., searching different classes/subclasses or electronic resources, or employing different search queries); and/or the prior art applicable to one species would not likely be applicable to another species; and/or the species are likely to raise different non-prior art issues under 35 U.S.C. 101 and/or 35 U.S.C. 112, first paragraph.

**Applicant is advised that the reply to this requirement to be complete must include (i) an election of a species to be examined** even though the requirement may be traversed (37 CFR 1.143) **and (ii) identification of the claims encompassing the elected species**, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered nonresponsive unless accompanied by an election.

The election of the species may be made with or without traverse. To preserve a right to petition, the election must be made with traverse. If the reply does not distinctly and specifically point out supposed errors in the election of species requirement, the election shall be treated as an election without traverse. Traversal must be presented at the time of election in order to be considered timely. Failure to timely traverse the requirement will result in the loss of right to petition under 37 CFR 1.144. If claims are added after the election, applicant must indicate which of these claims are readable on the elected species.

Should applicant traverse on the ground that the species are not patentably distinct, applicant should submit evidence or identify such evidence now of record showing the species to be obvious variants or clearly admit on the record that this is the case. In either instance, if the examiner finds one of the species unpatentable over the prior art, the evidence or admission may be used in a rejection under 35 U.S.C. 103(a) of the other species.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which depend from or otherwise require all the limitations of an allowable generic claim as provided by 37 CFR 1.141.

3. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to PAPE SENE whose telephone number is (571)270-5284. The examiner can normally be reached on 5/4/9.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, William Brewster can be reached on (571)272-1854. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. S./  
Examiner, Art Unit 4135

/PAPE SENE/  
Examiner, Art Unit 4135

/William M. Brewster/  
Supervisory Patent Examiner, Art Unit 4135